

What is claimed is:

1. A cable loss compensation system for use in a base station having a mast head unit remotely connected to ground-based equipment by a cable, the system comprising:

5 a first power level detector coupled to a transmit signal line at the ground-based equipment;

a second power level detector coupled to the transmit signal line at the mast head unit;

a compensation attenuator coupled to the transmit signal line;

10 at least one controller for controlling the compensation attenuator based on a comparison of signals from the first and second power level detectors.

2. The cable loss compensation system as recited in claim 1 further comprising a second compensation attenuator coupled to a receive signal line.

3. The cable loss compensation system as recited in claim 2 wherein the controller controls the second compensation attenuator.

4. The cable loss compensation system as recited in claim 1 further comprising a power and control cable connected between the mast head unit and the ground-based equipment for carrying control signals between the first and second power level detectors.

5. The cable loss compensation system as recited in claim 2 further comprising a first diplexer located in the ground-based equipment and coupled to the receive signal line, the transmit signal and the cable.

6. The cable loss compensation system as recited in claim 1 wherein the ground-based equipment further comprises a cell size attenuator coupled to the transmit signal line.

7. The cable loss compensation system as recited in claim 1 wherein the ground-based equipment further comprises a transmit pre-amplifier coupled to the transmit signal line.

8. The cable loss compensation system as recited in claim 2 further comprising a second diplexer located in the mast head unit and coupled to the receive signal line, the transmit signal line and the cable.

9. The cable loss compensation system as recited in claim 1 wherein the mast head unit further comprises a high power amplifier coupled to the transmit signal line.

10. The cable loss compensation system as recited in claim 2 wherein the mast head unit further comprises a low noise amplifier coupled to the receive signal line.

11. The cable loss compensation system as recited in claim 2 wherein the mast head unit further comprises an antenna diplexer coupled to an antenna, the transmit signal line, and the receive signal line.

12. A method of compensating for cable loss in a wireless communication system having a high power amplifier located proximate an antenna, a pre-amplifier receiving a transmit signal located at a remote location, and a cable connected between the amplifiers, the method comprising the steps of:

5 detecting a first power level of the transmit signal at an output of the pre-amplifier;

detecting a second power level of the transmit signal at an input of the high power amplifier;

comparing the first and second power levels to determine a loss in the cable;

10 adjusting a cable compensation attenuator coupled to the pre-amplifier based upon the loss.

13. The method of compensating for cable loss as recited in claim 12 wherein a gain of the cable compensation attenuator is increased if the loss is below a lower limit.

14. The method of compensating for cable loss as recited in claim 12 further comprising the steps of:

comparing the loss to upper and lower limits;

5 maintaining the gain of the cable compensation if the loss is between the limits;

increasing the gain of the cable compensation if the loss is below the lower limit; and,

decreasing the gain of the cable compensation if the loss is above the upper limit.

15. The method of compensating for cable loss as recited in claim 12 further comprising adjusting the gain of a second cable compensation attenuator coupled to a receive signal based upon the loss.

16. A loss compensation system for use in a base station having at least one cable extending between first and second locations, the system comprising:

power level detection means for determining transmit signal power levels at each location;

- 5            comparing means for comparing power levels from the power level detection means and for determining a loss between the two locations;
- attenuating means for controlling the power level of the transmit signal; and,
- control means responsive to the comparing means for controlling the attenuating means.